

SAP Business Intelligence Reporting

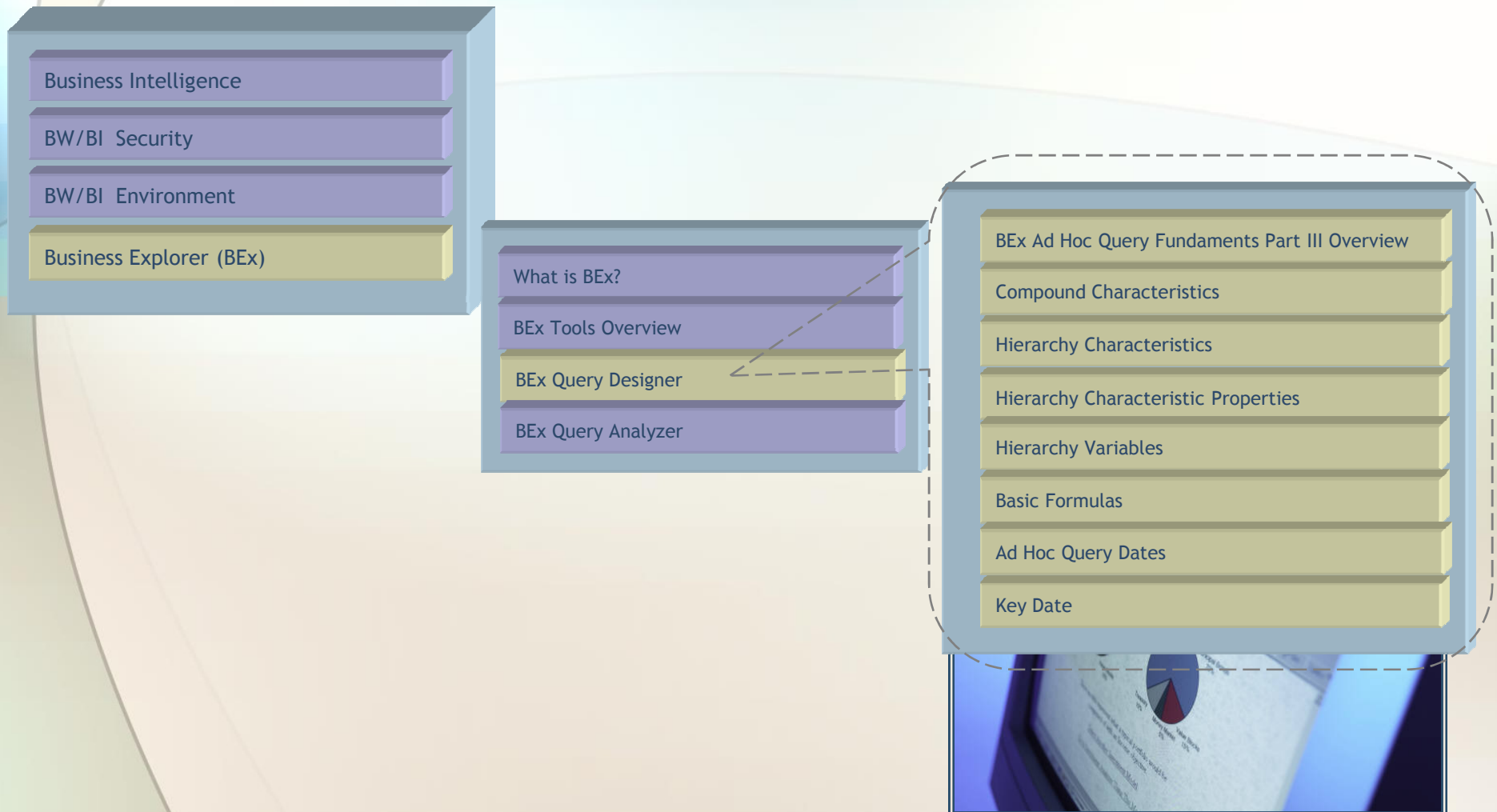
BEx Ad Hoc Query Fundamentals - Part III

Washington State HRMS Business Intelligence (BW/BI)
BW/BI Power User Workshop Materials

General Topics - BW/BI Power Users

BEx Ad Hoc Query Fundamentals - Part III

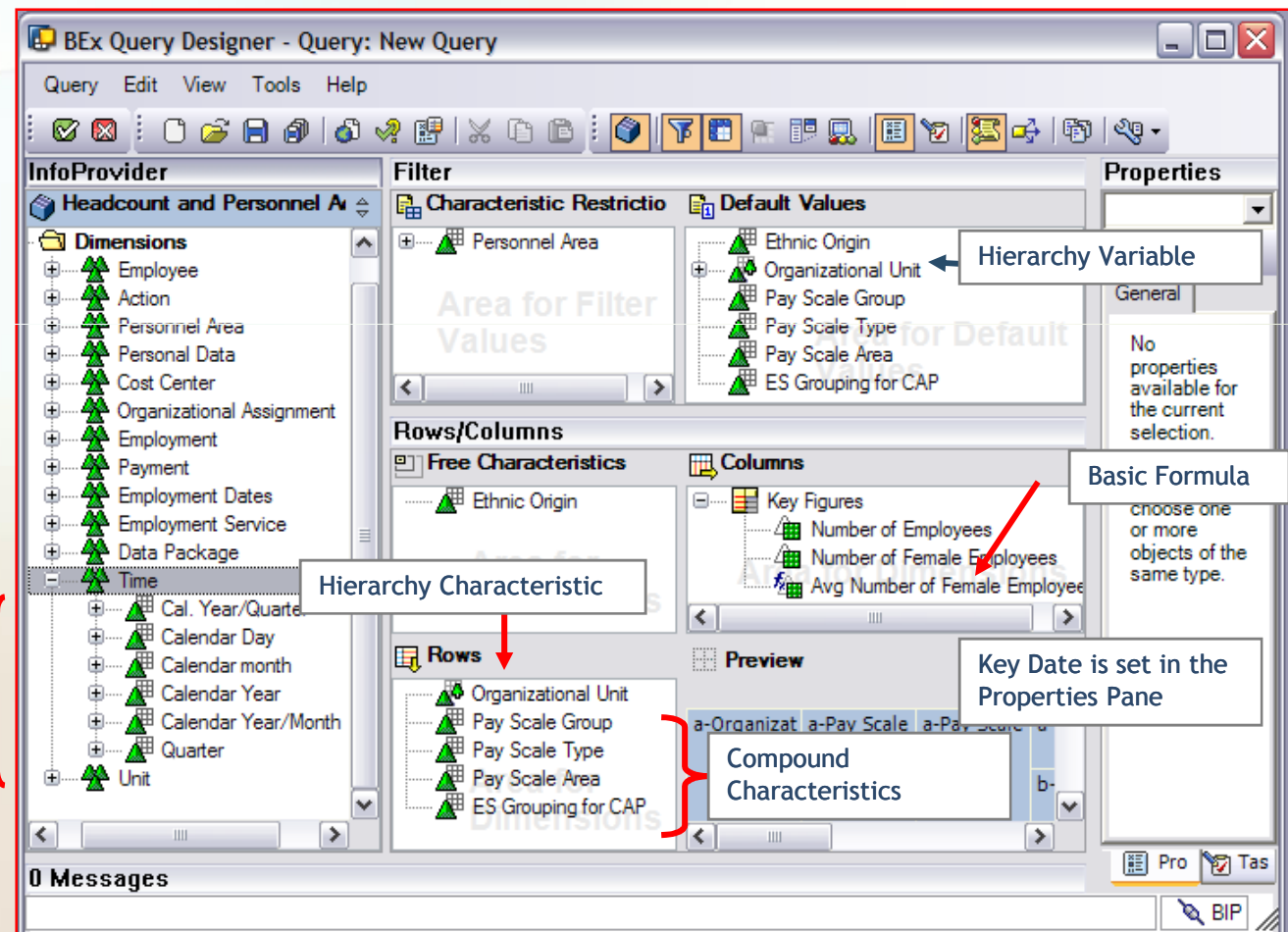
The following BEx Ad Hoc Query Fundamentals - Part III section provides an overview of BEx Ad Hoc Query Fundamentals and builds on the key terms and concepts covered in BEx Query Fundamentals - Part I and Part II.



BEx Ad Hoc Query Fundamentals - Part III Overview

BEx Ad Hoc Query Fundamentals - Part III contains the following key terms and concepts:

- Compound Characteristics
- Hierarchy Characteristics
- Hierarchy Characteristic Properties
- Hierarchy Variables
- Basic Formulas
- Ad Hoc Query Dates
- Key Date



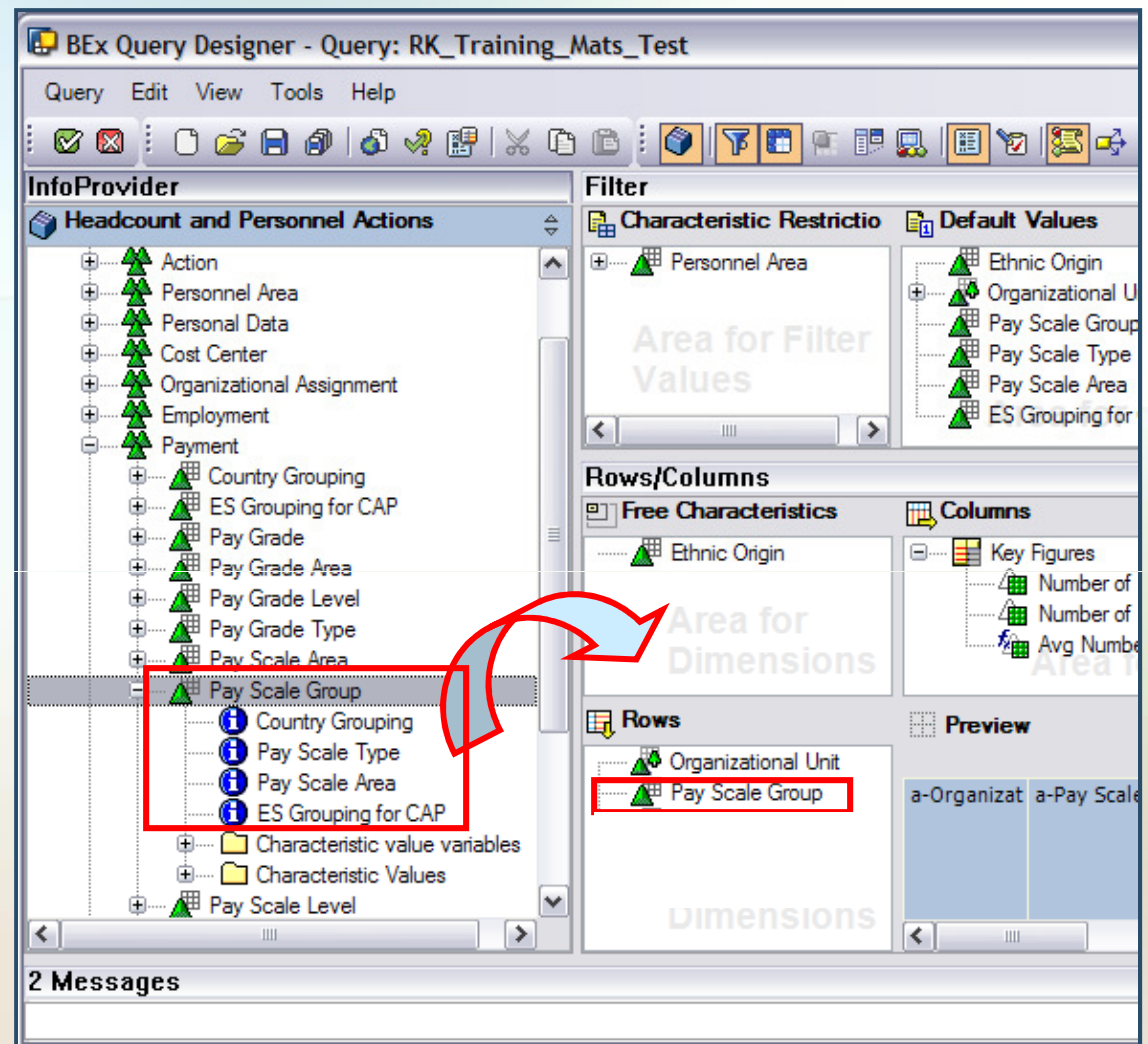
Compound Characteristics

Compound Characteristics are part of a group of Characteristics that are dependent on one another.

For example, the Pay Scale Group Characteristic is a Compound Characteristic that is compounded with the following Characteristics:

- Country Grouping
- Pay Scale Area
- Pay Scale Type
- ES Grouping for CAP (Employee Subgroup Grouping for Collective Agreement Provisions)

If Pay Scale Group is added to the query, all of its related Characteristics listed above are automatically included in the report results.



Continued...

Compound Characteristics, Cont...

In the example below, the Pay Scale Group Characteristic has been added to the ad hoc query. Country Grouping, Pay Scale Type, Pay Scale Area and ES Grouping for CAP are automatically added to the report results since they are Compounded with Pay Scale Group.

- To remove the Compound Characteristic data from the report, right click on “Pay Scale Group”, select “Properties” → “Characteristic”.
- In the Properties box, click on the “Display” dropdown arrow and select on that says “Not Compounded). This will remove the data for the Compound Characteristic from the results.

Properties of Characteristic Pay Scale Group (Result Set Context)

General | Sorting | Advanced

Display: Key (Not Compounded)

Display Results: Always

Access Mode for Result Set: Posted Values

Pay Scale Group without Compound Characteristics

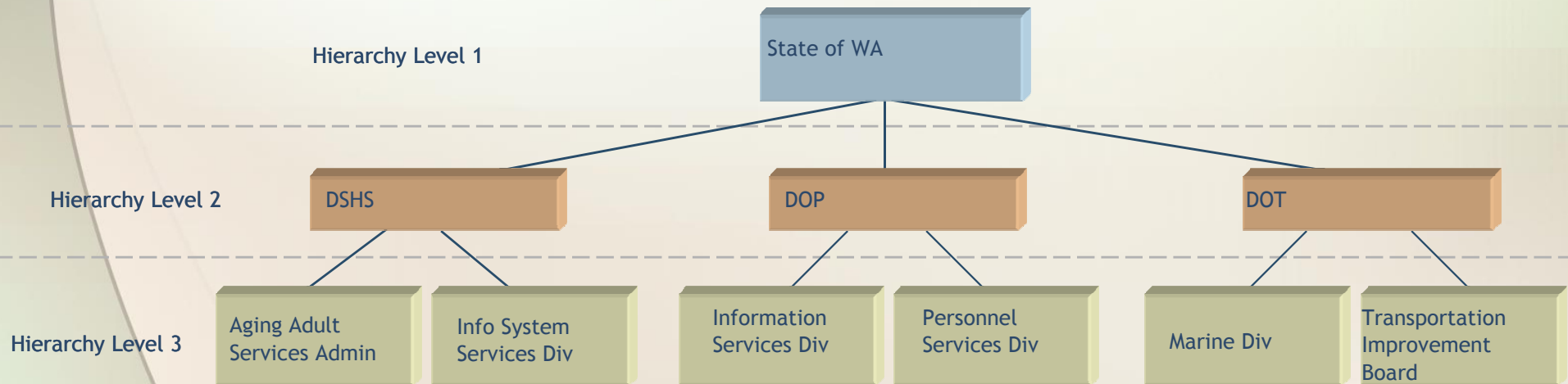
Hierarchy Characteristics

Hierarchy Characteristics are Characteristics arranged in a tree structure. In BW/BI , the only hierarchy is the Organizational Unit Hierarchy.

The Organizational Unit Hierarchy allows the user to select a “parent” Organizational Unit (such as State of WA or DOP in the example below) and include all the “child” Organizational Units that are beneath it when the ad hoc query is run.

The example below represents the Organizational Unit Hierarchy structure with each box representing a different Organizational Unit. These Organizational Units are arranged hierarchically with the State of Washington being the highest level, and Agencies below.

Sample Organizational Unit Hierarchy Structure

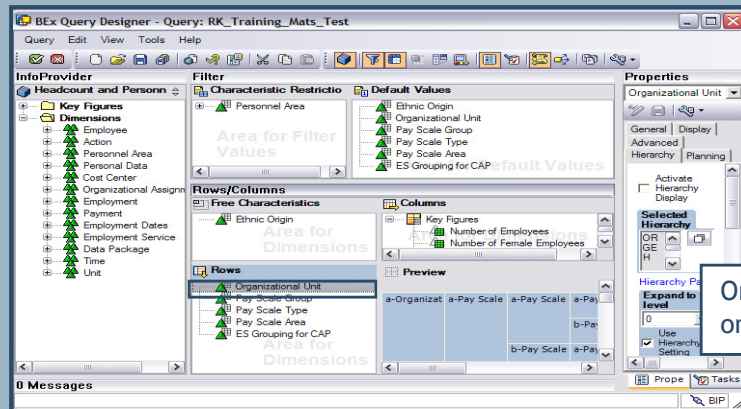


Continued...

Hierarchy Characteristics, Cont...

The example below shows the difference between using the Organizational Unit Characteristic and the Organizational Unit Characteristic with the Hierarchy in the ad hoc query (see Variables for information on adding the Organizational Unit Hierarchy Variable).

Organizational Unit in Query (w/out Hierarchy)

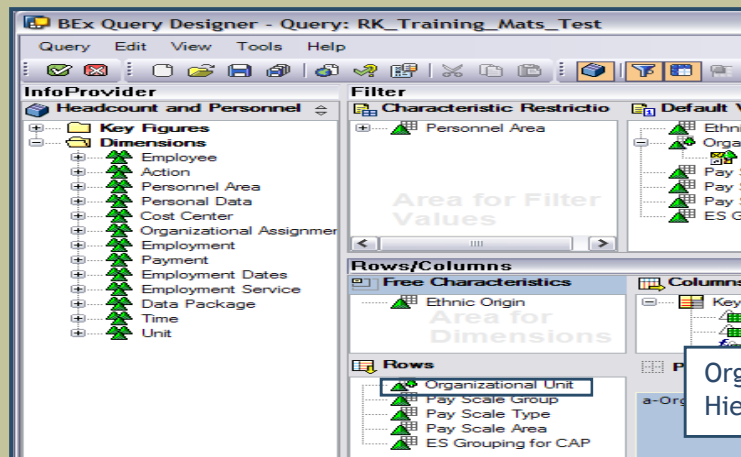


Query Results for Organizational Unit (w/out Hierarchy)

Organizational Unit	Pay Scale Group	Pay Scale Type	Pay Scale
30000510	10/00/01/3/58	10/00	Non-Represented
30000515	10/00/01/3/66	10/00	Non-Represented
DA	10/##/##/##	10/##	10/Not assigned
	10/##/##/3/##	10/##	10/Not assigned
10/00/01/1/44	10/00	Non-Represented	10/01
10/00/01/1/48	10/00	Non-Represented	10/01
10/00/01/1/50	10/00	Non-Represented	10/01
10/00/01/1/54	10/00	Non-Represented	10/01

Organizational Unit only

Organizational Unit Hierarchy in Query



Query Results for Organizational Unit Hierarchy

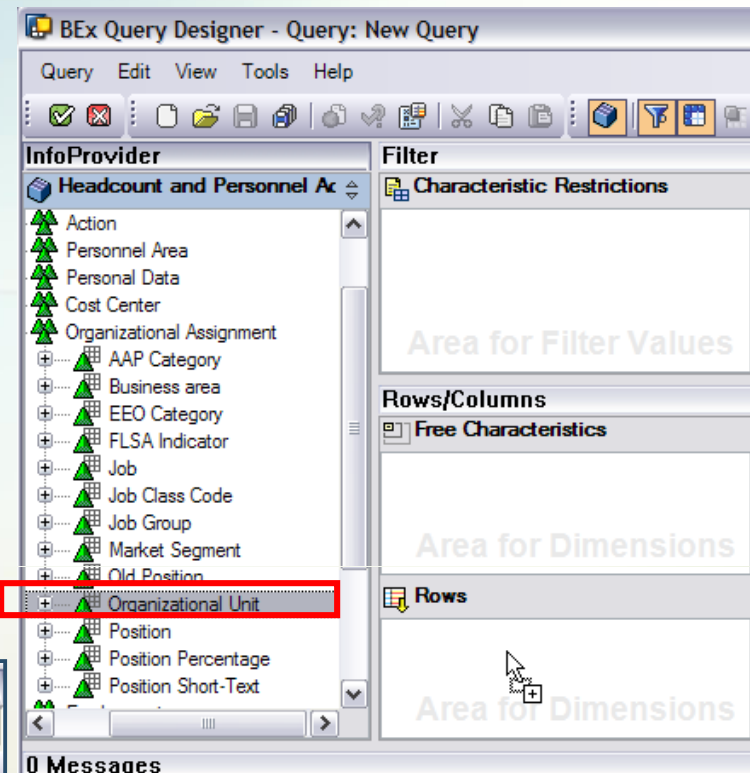
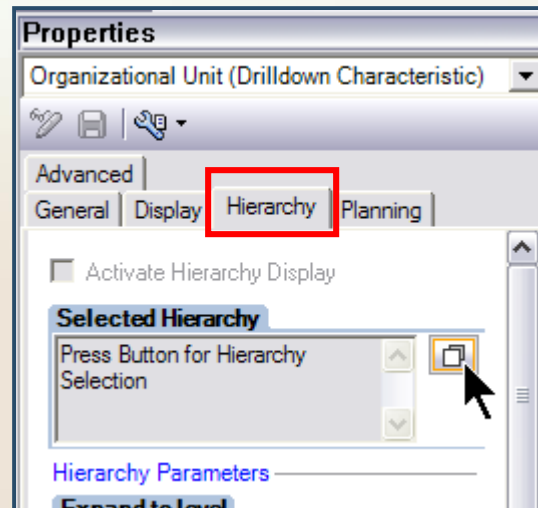
Organizational Unit	Pay Scale Group	Pay Scale Type	Pay Scale
▼ SOW	10/00/01/3/55	10/00	Non-Represented
	10/00/01/3/56	10/00	Non-Represented
	10/00/01/3/58	10/00	Non-Represented
	10/00/01/3/62	10/00	Non-Represented
	10/00/01/3/66	10/00	Non-Represented
	10/00/01/3/70	10/00	Non-Represented
	10/00/07/3/27G	10/00	Non-Represented
	10/00/07/3/35G	10/00	Non-Represented
	10/00/07/3/41G	10/00	Non-Represented
► 111	10/01/01/3/58	10/01	WFSE
	10/##/##/##	10/##	10/Not assigned
	10/##/##/1/##	10/##	10/Not assigned

Organizational Unit Hierarchy

Hierarchy Characteristics, Cont...

To make the Organizational Unit Characteristic a Hierarchy:

1. Drag&Drop the Organizational Unit Characteristic from the Organizational Assignment Dimension to the Rows section of the query.
2. From the Properties pane for Organizational Unit, select the Hierarchy tab and click the matchcode button.

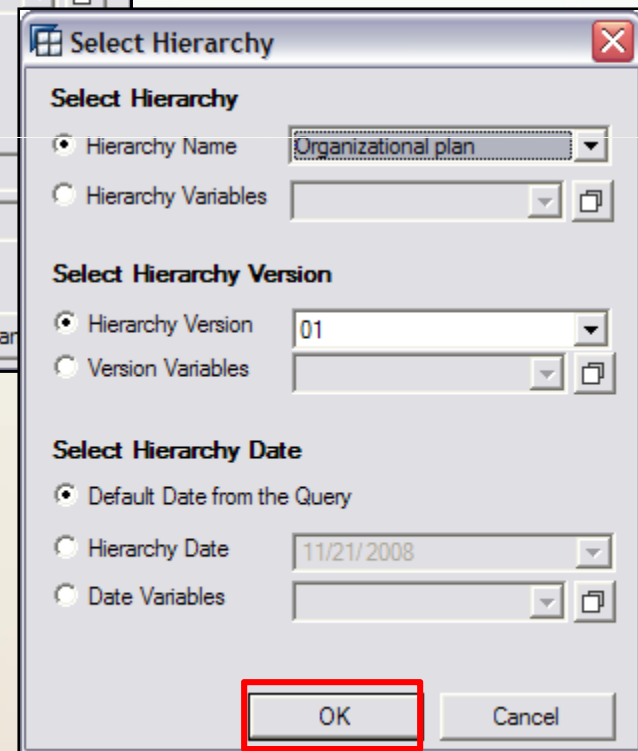
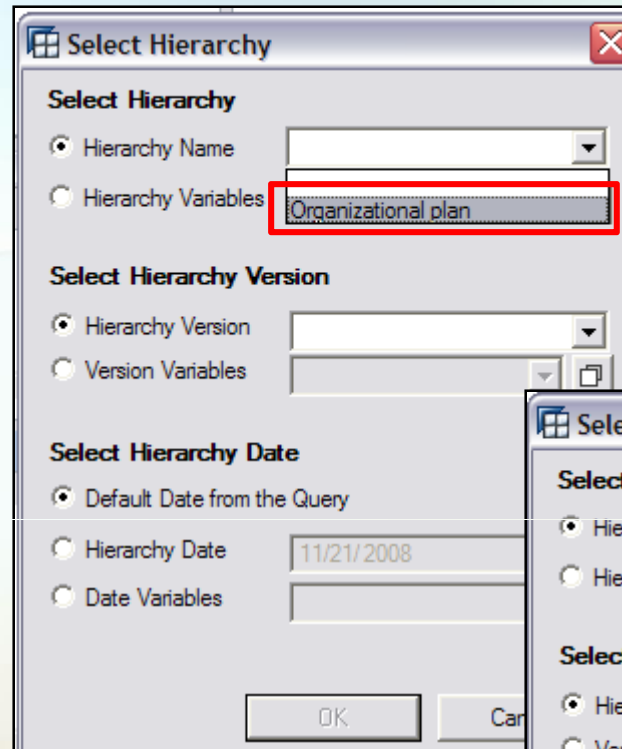


Hierarchy Characteristics, Cont...

To make the Organizational Unit Characteristic a Hierarchy:

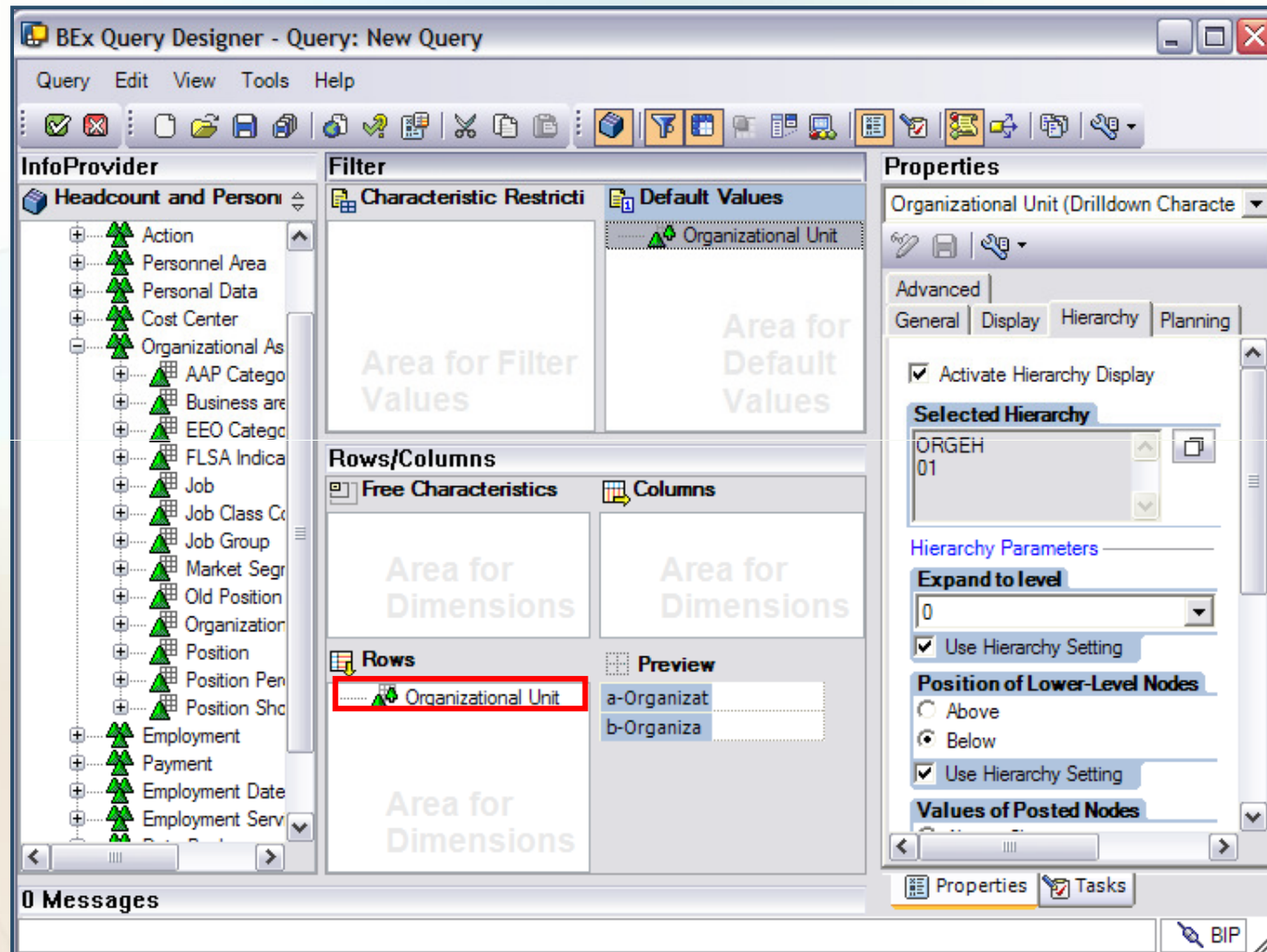
3. Click on the dropdown in the Hierarchy Name text box and select the Hierarchy (there is only one).
4. Version and Date have default values. These can be left as default.
5. Click OK.

Result: The Organizational Unit Characteristic has been changed to Organizational Unit Hierarchy.



Hierarchy Characteristics, Cont...

Result: The Organizational Unit Characteristic has been changed to Organizational Unit Hierarchy.



Hierarchy Characteristic Properties

The **Hierarchy Characteristic Properties** become available when a Hierarchy. The Display Hierarchy section becomes enabled.

The example below provides a brief description of the Display Hierarchy property settings (other property settings are defined in the Characteristics Properties section):

Properties
Organizational Unit (Drilldown Characteristic)

General | Display | **Hierarchy** | Planning | Advanced

☒ Activate Hierarchy Display

Selected Hierarchy
ORGEH
01

Hierarchy Parameters
Expand to level
0

☒ Use Hierarchy Setting

Position of Lower-Level Nodes
☐ Above
☒ Below

☒ Use Hierarchy Setting

Values of Posted Nodes
☒ Always Show

Nodes with Only One Lower-Level Node
☒ Always Show

☒ Use Hierarchy Setting

Sorting
Sort by
As in the Hierarchy

Sort Direction
Ascending

☒ Use Characteristic Setting

Set the Hierarchy to Active

Select the Hierarchy

Specify how many levels the Hierarchy should expand to on execution (Expand to level 1 to rollup Hierarchy on startup)

Sort the Hierarchy: Ascending / Descending

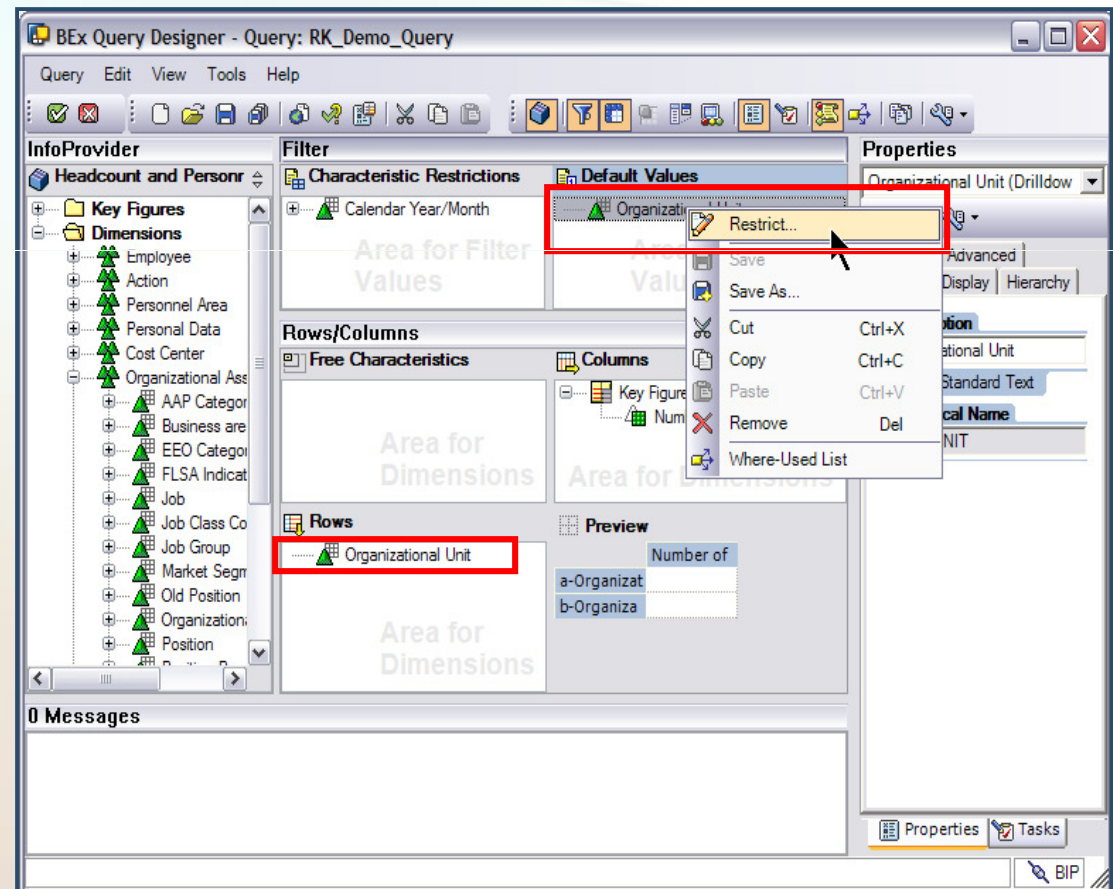
Hierarchy Variables

Hierarchy Variables are Variables added to a Hierarchy Characteristic that prompt the user to enter a Hierarchy Variable prior to running a query. The Organizational Unit Hierarchy is the only Hierarchy available in BW/BI.

The example below uses the Headcount and Personnel Actions InfoProvider to show how to add the Organizational Unit Hierarchy Variable to the Organizational Unit Hierarchy. This will prompt the user to enter an Organizational Unit Hierarchy prior to running a query.

To add a Hierarchy Variable to a Hierarchy:

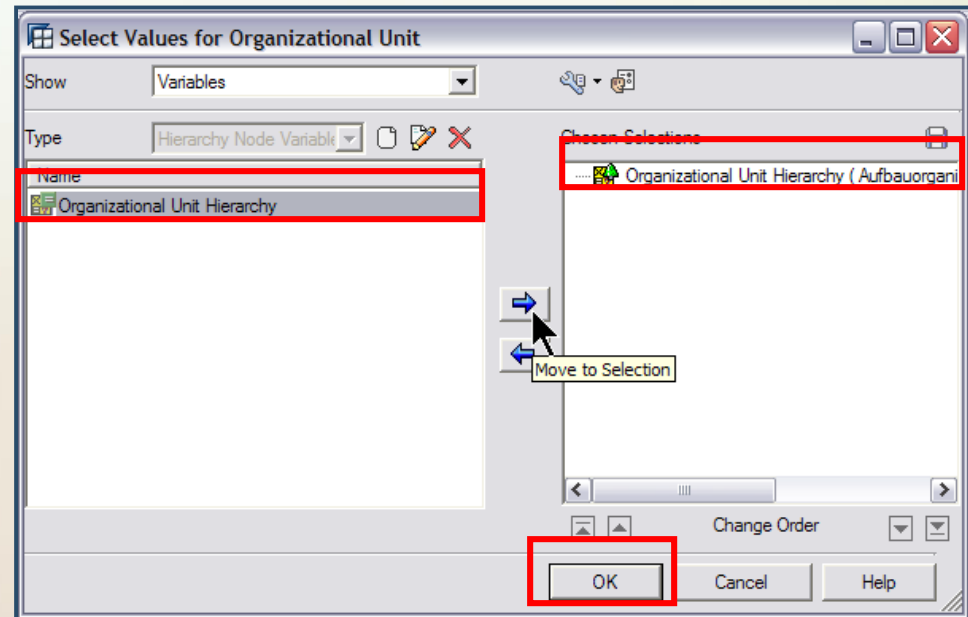
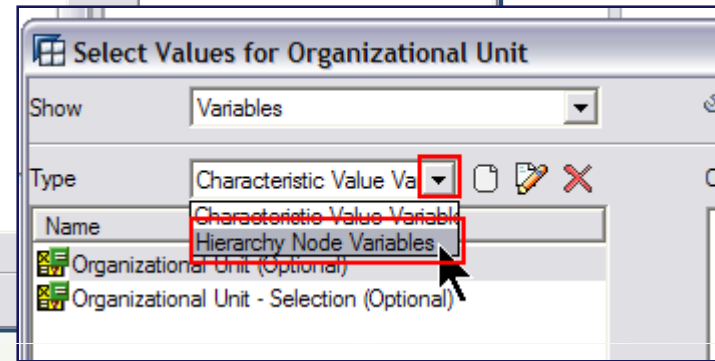
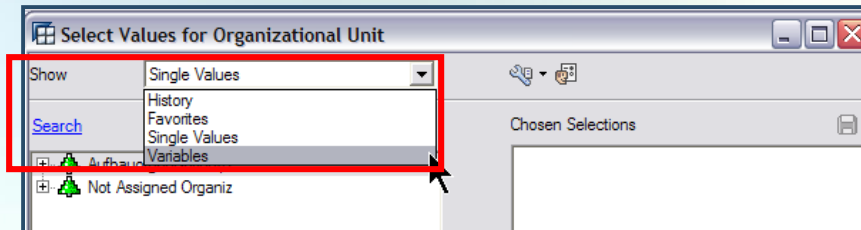
1. Drag&Drop the Organizational Unit Characteristic to the Rows section of the query.
2. Right click on the Organizational Unit Characteristic in the Default Values section to open the Context Menu.
3. Select Restrict.



Hierarchy Variables, Cont...

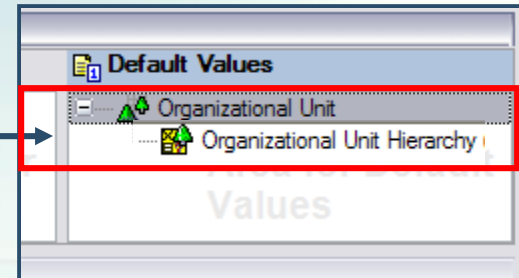
Result: The Selection Values for Organizational Unit screen will be displayed.

4. From the "Show" dropdown, select "Variables".
5. From the "Type" dropdown, select "Hierarchy Node Variables":
6. Select "Organizational Unit Hierarchy".
7. Click the arrow to "Move to Selection".
8. Click OK.



Hierarchy Variables, Cont...

Result: The Organizational Unit Hierarchy variable has been added to the Organizational Unit Characteristic



The user will be prompted to enter an Organizational Unit Hierarchy variable prior to running the ad hoc query.

Variable Entry

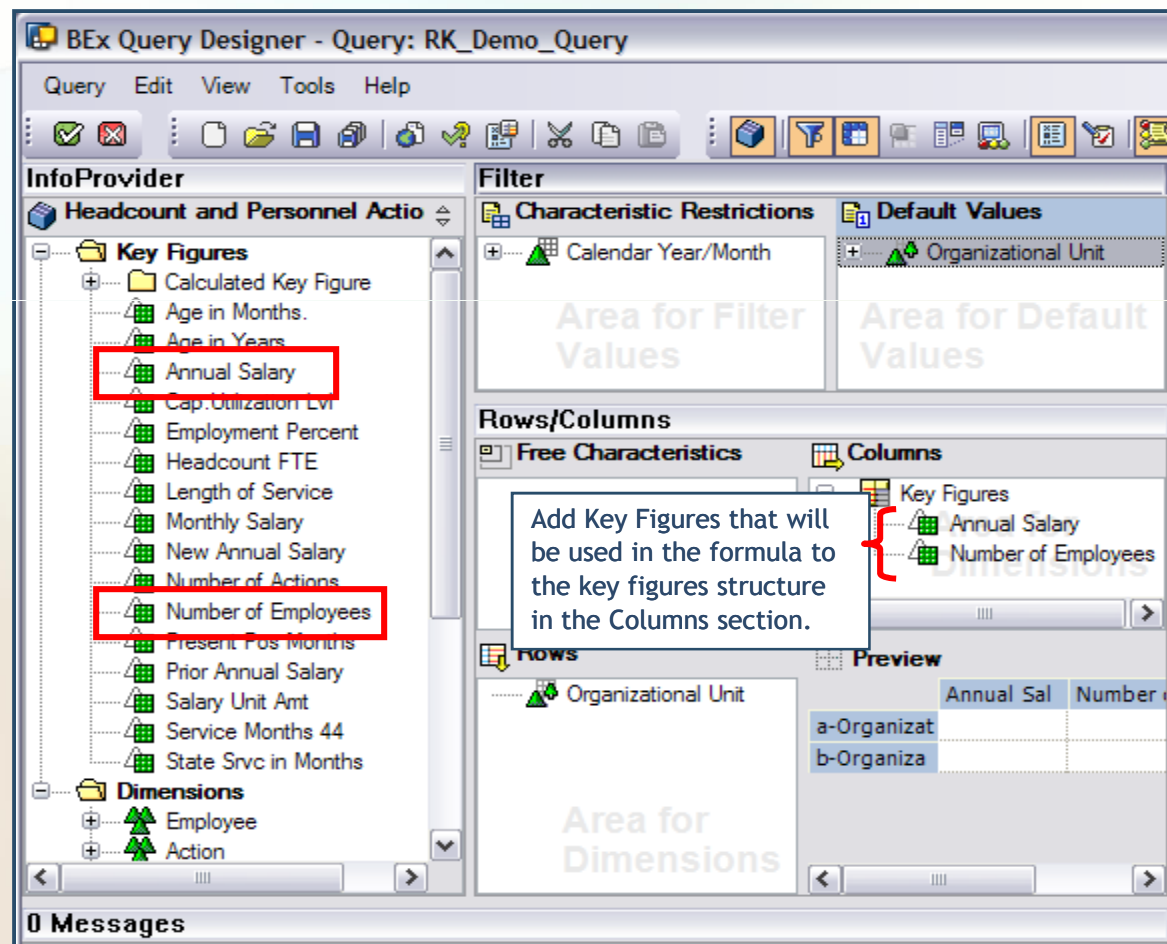
Available Variants: Save Save As... Delete [Show Variable Personalization](#)

General Variables		
Variable	Current Selection	Description
Personnel Area - Select (Optional)		
Organizational Unit Hierarchy	+30000491/(0ORGUNIT)	111

OK Check

Formulas are calculations used to create custom Key Figures in the ad hoc query. Formulas use existing Key Figures to calculate a new Key Figure.

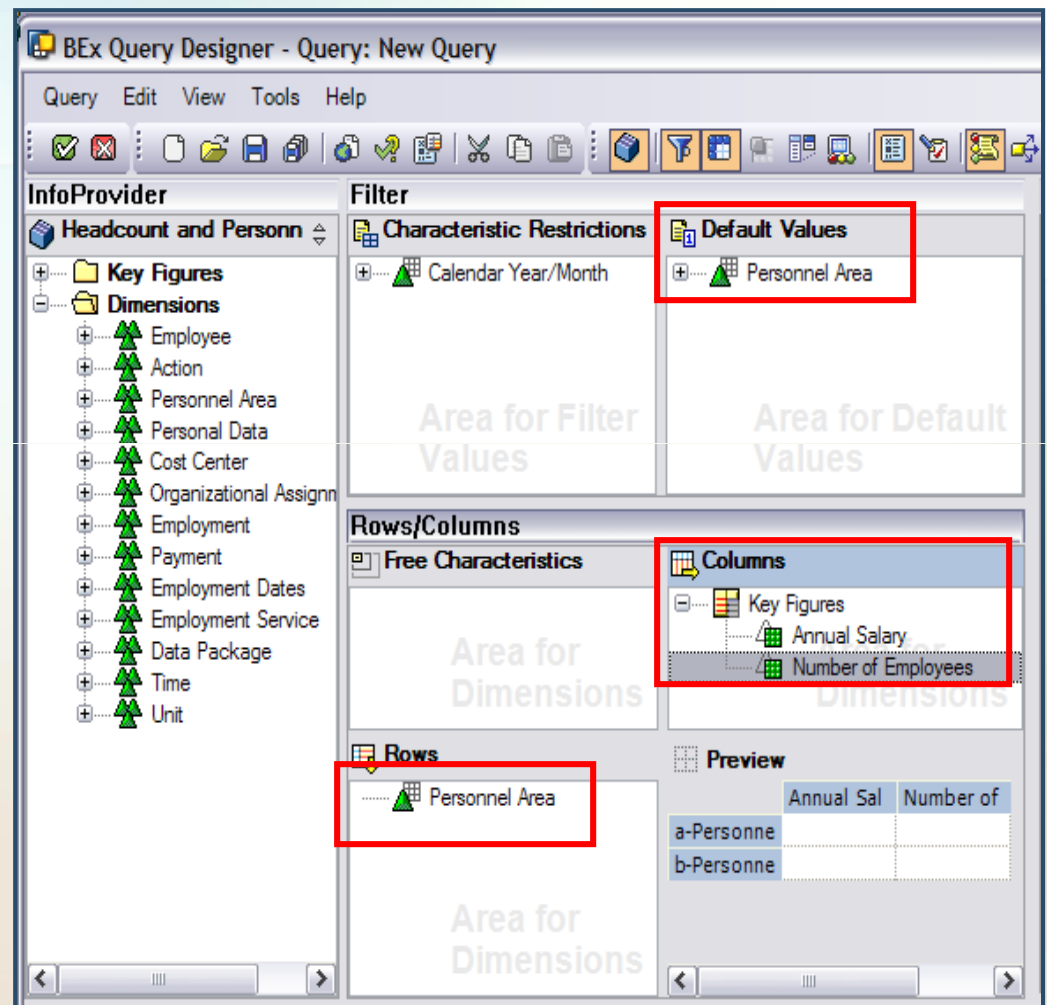
Key Figures that are used in a formula must be added to the Key Figures structure. For example, to create a basic formula that calculates the Average Annual Salary of employees, the Number of Employees and Annual Salary Key Figures must be added to the Key Figures structure of the query.



Basic Formulas, cont...

The example below uses the Headcount InfoProvider to show how to create a formula that will calculate the average salary of employees in a Personnel Area:

1. Drag&Drop the Annual Salary Key Figure to the Columns section of the query.
2. Drag&Drop the Number of Employees Key Figure to the Columns section of the query.
3. Drag&Drop the Personnel Area Characteristic to the Rows section.
4. Add the “Personnel Area (Optional)” Variable from the Personnel Area Characteristics Value Variables to the Personnel Area Characteristic in the Default Values section.

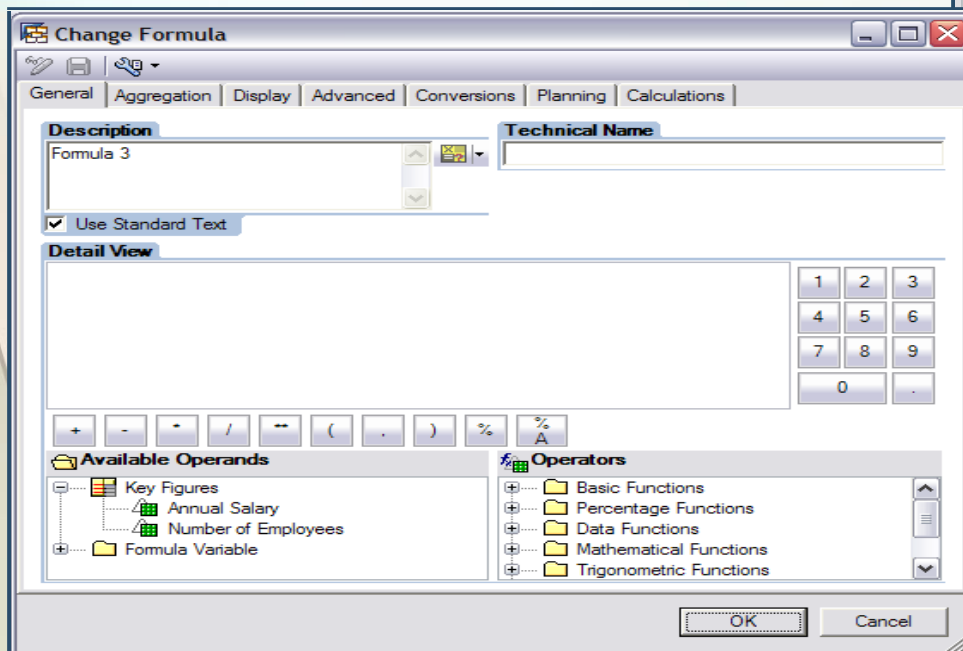
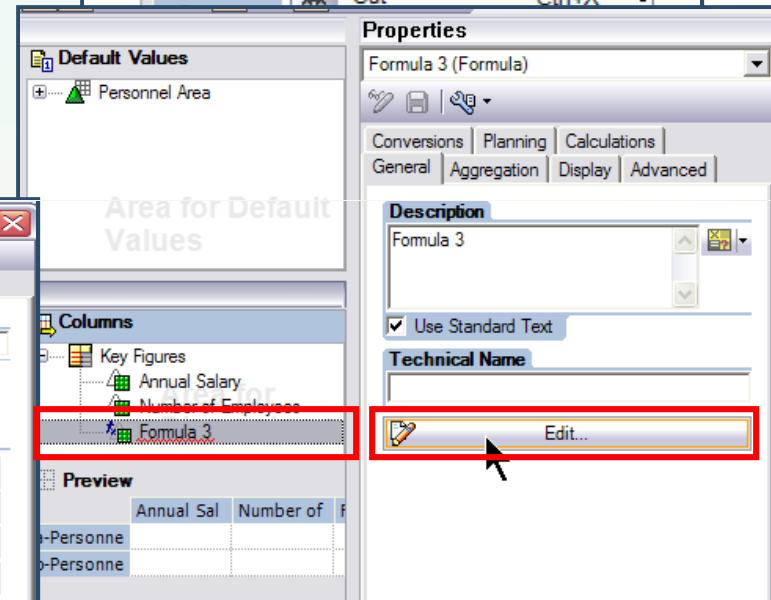
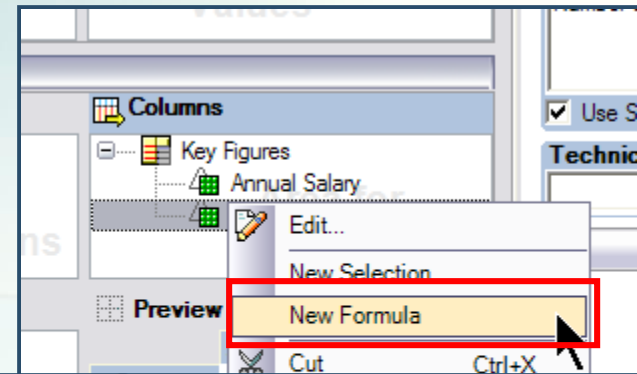


Basic Formulas, cont...

5. Right mouse-click the any object in the Columns section to open the Context Menu.
6. Select New Formula.

Result: The New Formula is added to the Column section.

7. Select the New Formula and click “Edit” in the Properties pane.
8. The “Change Formula” box is displayed.



10. Enter a description for the formula (in this example, "Average Salary") in the description field.
11. Double click Annual Salary key figure to add it to the formula..
12. Click the Divide by symbol.
13. Double click the Number of Employees key figure to add it to the formula
14. Click OK to close the Change Formula screen

Change Formula

General | Aggregation | Display | Advanced | Conversions | Planning | Calculations

Description
Average Salary

Technical Name

☐ Use Standard Text

Detail View
'Annual Salary' / 'Number of Employees'

1 2 3
4 5 6
7 8 9
0 .

+ - * / ** () % %A

Available Operands

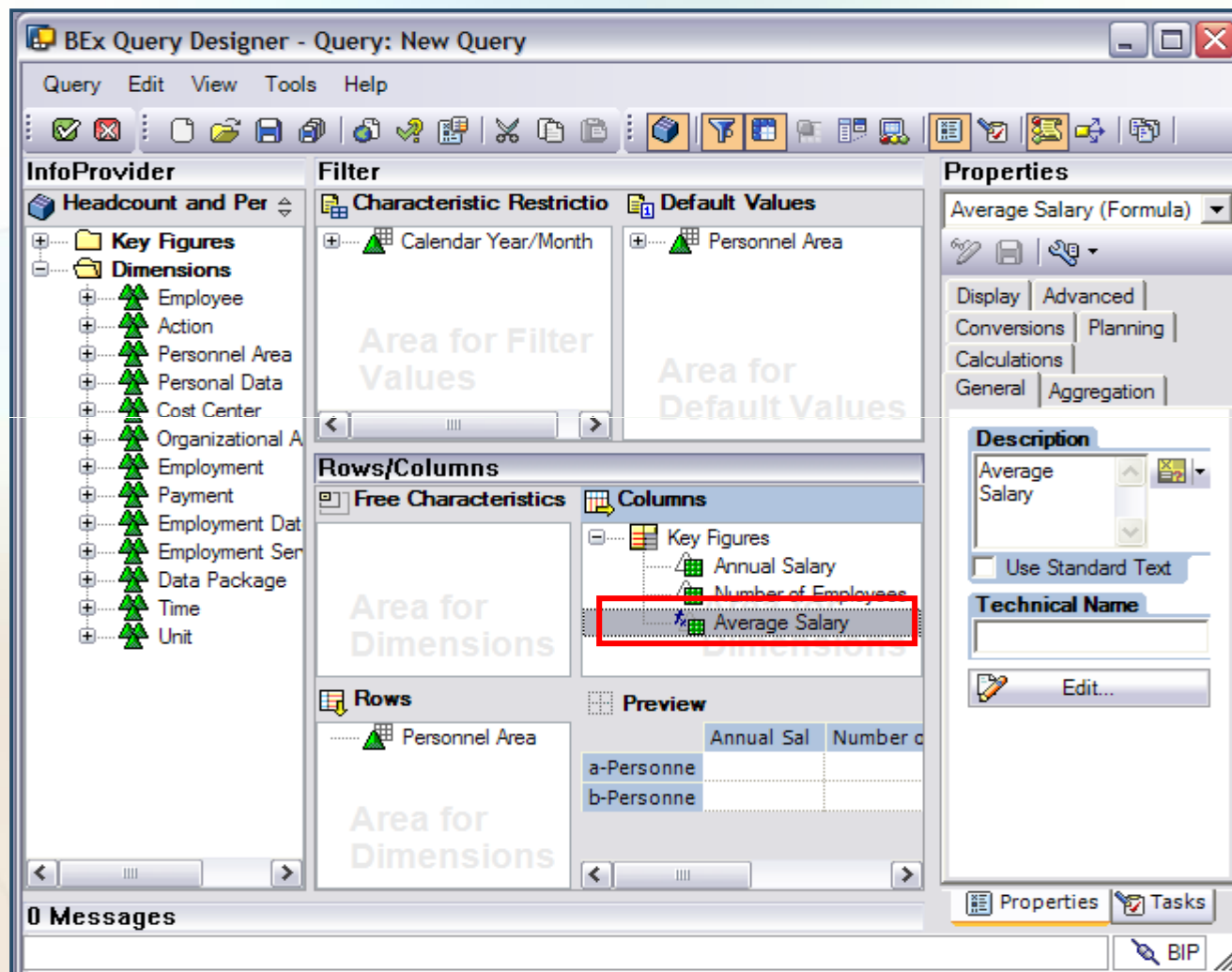
- Key Figures
 - Annual Salary
 - Number of Employees
- Formula Variable

Operators

- Basic Functions
- Percentage Functions
- Data Functions
- Mathematical Functions
- Trigonometric Functions
- Boolean Operators

OK **Cancel**

Result: A new key figure has been added to the ad hoc query that will calculate the Average Salary of employees by Personnel Area:



Date Characteristics are InfoObjects that can be added to a query from the Time dimension. Date Characteristics such as Calendar Days or Calendar Month/Year can be added to a query in Rows, Columns, Free Characteristics or Filters. If added to the Filters section, they will not be displayed in the query results.

When a Date Characteristic is used with a variable, Characteristics and Attributes in the query could report two different time periods (see *Key Date* for more information):

- Characteristics in the query will be “as of” the date value input by the user.
- Attributes in the query will be “as of” the Key Date set in the query properties.

Select Values for Calendar Year/Month

Available Variables:

Variable	Current Selection	Description
* Calendar Month Prompt _ Single Value		
Personnel Area - Select (Optional)		

Variable Entry

Available Variables: Save Save As... Delete Show Variable Personalization

General Variables

Variable Current Selection Description

* Calendar Month Prompt _ Single Value

Personnel Area - Select (Optional)

OK Check

The **Key Date** represents the “as of” date for Attributes. Key Date is set from the Query Property settings of an ad hoc query.

Attributes and Characteristics in the query could report two different time periods when a Date Characteristic (see *Ad Hoc Query Dates* for more information) is used with a variable.

- Attributes in the query will be “as of” the Key Date set in the query properties.
- Characteristics in the query will be “as of” the date value input by the user.

BEx Query Designer - Query: RK_Test_Query_BI

Query Edit View Tools Help

InfoProvider
Headcount and Personnel Ac

Filter
Characteristic Restrictions
Calendar Year/Month
Calendar Month Prompt _ Single Value
Date Variable

Default Values
Personnel Area
Employee

Free Characteristics
Personnel Area
Employee
Hire Date
Position
Annual Salary

Columns
Preview
a-Personne a-Employee
b-Personne a-Employee
b-Personne a-Employee

Properties
RK_Test_Query_BI (Query)

Rows/Columns Value Display
Planning Advanced
General Variable Sequence Display

Description
RK_Test_Query_BI

Technical Name
ARK_TEST_QUERY_BI

InfoProvider
ZPA_C01

Key Date
Use Standard Date

Key Date Property (if empty, defaults to current date)

Key Date
&ZZKYDATE&
Use Standard Date

Date/Time: 6/9/2008 12:56:01 PM

The example below shows InfoObjects of an ad hoc query that are related to Key Date.

- Attributes in the query results will report the date values as of the Key Date in the ad hoc query Properties. If the Key Date is not set, the date will be as of the current date.
- If a Date Variable is added to a Date Characteristic in the query, Characteristics in the query results will report the date values input by the user from the Date Variable.

Calendar Year/Month Characteristic

Date Variable (prompt user for month/year prior to running query)

Characteristics: Valid as of the Calendar Year/Month input by the user.

***Attribute: Valid as of the Key Date**



*Attributes can be identified by the Technical Name: An Attribute includes the Characteristic Technical Name, followed by an underscore (_) and the Attribute Technical Name

To ensure Attributes and Characteristics report the same time periods in the query results, the following options are available:

1. **Do not use a Date Variable**

If a Date Variable is not added to an ad hoc query, the Attributes and Characteristics will be valid as of the current date. The Key Date does not need to be set since it defaults to the current date.

2. **Manually set Key Date**

The Key Date can be manually set from the Query Property settings. If the Key Date is manually set, the value from the Key Date in the Query Property settings will be used each time the query is run.

If a variable value is input at query runtime:

- the value from the Key Date in the Query Property settings will be used for Attributes.
- the value from the variable will be used for Characteristics.

The following page will show two examples of manually setting the Key Date using a Calendar Year/Month variable and a Calendar Day variable.

Continued...

The following example uses the “Calendar Month (Optional)” variable to show how the Key Date could be set if the calendar month is set to 4/2008:

Variable Entry

Available Variants: Save Save As... Delete

Variable	Current Selection	Description
Organizational Unit Hierarchy		
Personnel Area - Select (Optional)		
Job - Multiple (Optional)		
Calendar Month (Optional)	4/2008	

OK Check

User sets variable value at runtime

Example: Calendar Month (Optional) variable for 4/2008

Properties

RK_Test_Query_BI (Query)

Rows/Columns Value Display

Planning Advanced

General Variable Sequence Display

Description
RK_Test_Query_BI

Technical Name
ARK_TEST_QUERY_BI

InfoProvider
ZPA_C01

Key Date
4/30/2008

Use Standard Date

Example: Set Key Date property to the last day of the month selected from the Variables prompt - 4/2008

The following example uses the “Calendar Day” variable to show how the Key Date could be set if the calendar day is set to 6/9/2008:

Variable Entry

Available Variants: Save Save As... Delete Show Variable Personalization

Variable	Current Selection	Description
Personnel Area - Select (Optional)		
Calendar Day	06/09/2008	06/09/2008

OK Check

User sets variable value at runtime

Example: OCALDAY (OPTIONAL) variable for 6/9/2008

Properties

RK_Test_Query_BI (Query)

Rows/Columns Value Display

Planning Advanced

General Variable Sequence Display

Description
RK_Test_Query_BI

Technical Name
ARK_TEST_QUERY_BI

InfoProvider
ZPA_C01

Key Date
06/09/2008

Use Standard Date

Example: Set Key Date property to the same day of the day selected from the Variables prompt - 6/9/2008

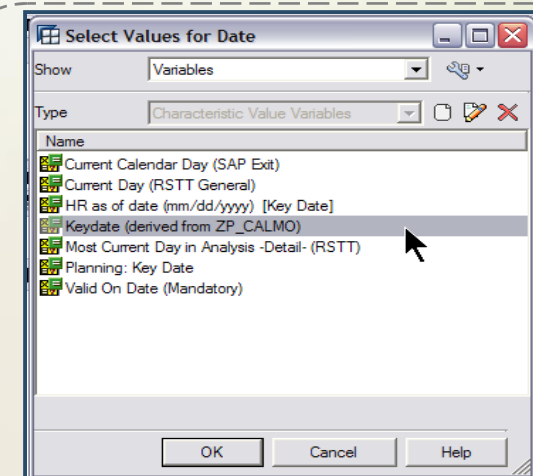
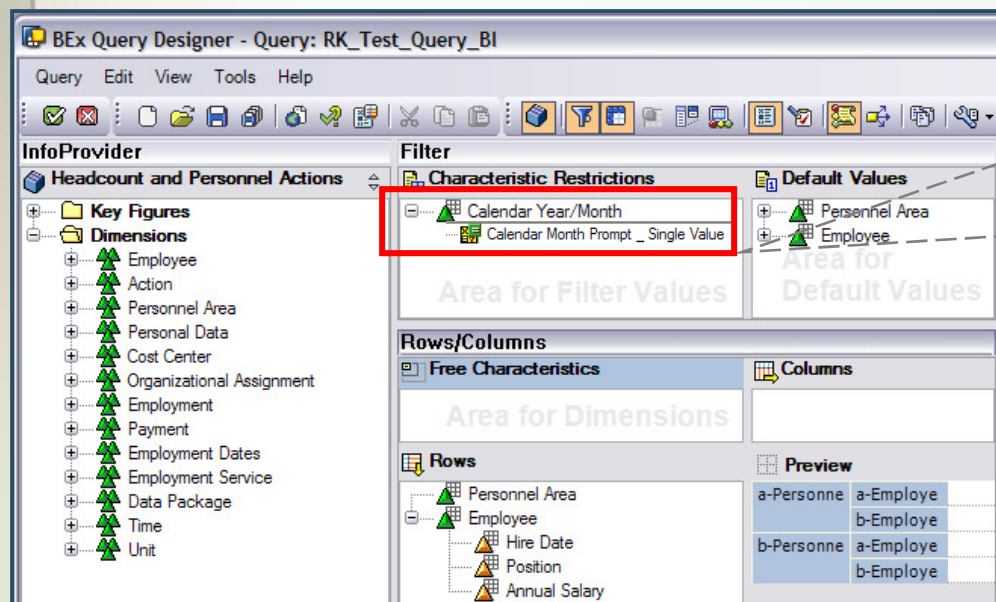
3. Use the Key Date Variable for a Single Month/Year

The Key Date can be set using the variable “Key Date for ZP_CALMO”. This will ensure that the Attributes and Characteristics are reporting on the same time period without having to manually set the Key Date.

The “Key Date for ZP_CALMO” variable is used with the “Calendar Month Prompt - Single Value” (ZP_CALMO) variable. The “Calendar Month Prompt - Single Value” variable prompts users to enter a month/year value at query runtime.


If a variable value is input at query runtime:

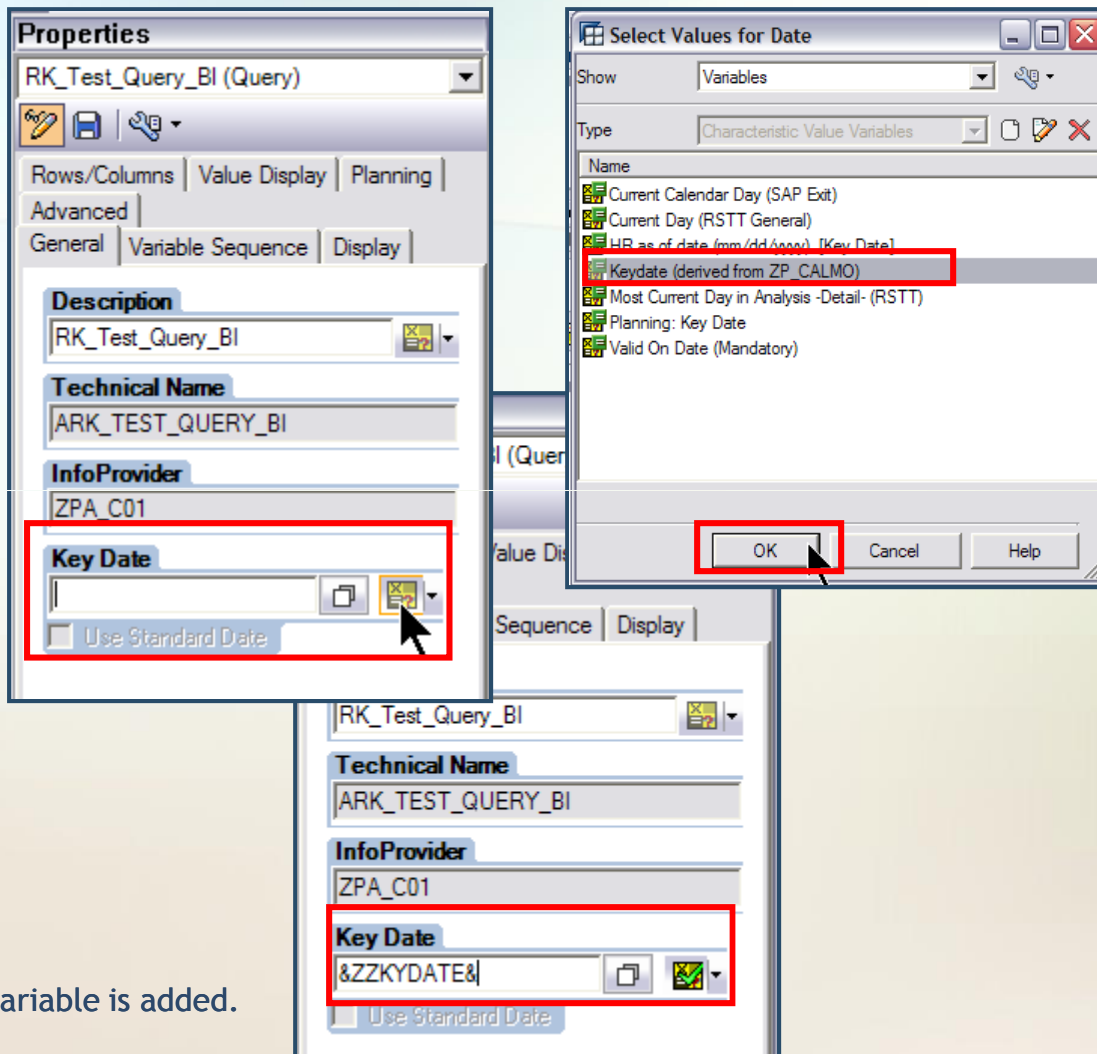
- the value from the “Key Date for ZP_CALMO” variable for Key Date in the Query Property settings will be used for Attributes.
- the value from the “Calendar Month Prompt - Single Value” variable will be used for Characteristics.



Continued...

To set the Key Date property to the “Key Date for ZP_CALMO” variable:

1. In the Properties box for the Query, click the variable  icon in the Key Date section.
2. In the Select values for Date, select “Keydate”.
3. Click OK.



Result: Key Date variable is added.